THE DELAWARE AND HUDSON RAILROAD BULLETIN

SEPTEMBER 1, 1932

LAKE GEORGE
GULL BAY

Morning Prayer

LET me to-day do something that shall take
A little sadness from the world's vast store,
And may I be so favored as to make
Of joy's too scanty sum a little more.

Let me not hurt, by any selfish deed,
Or thoughtless word, the heart of foe or friend;
Nor would I pass, unseeing, worthy need,
Nor sin by silence when I should defend.

However meagre be my worldly wealth,
Let me give something that shall aid my kind—
A word of courage or a thought of health,
Dropped as I pass for troubled hearts to find.

Let me to-night look back across the span
'Twixt dawn and dark, and to my conscience say—
"Because of some good act to beast or man
The world is better that I lived to-day."

—ELLA WHEELER WILCOX.

The
DELAWARE AND HUDSON RAILROAD
CORPORATION
BULLETIN

Doughnuts and Pea Soup Famous

Food of Former "B. & B." Train Cook Had Division-wide Reputation

ADOLPHUS CASE

"WELL, son, what do you think of New York City's skyline?" asked the skipper of a canal boat docked at pier 6 in the East River, addressing the nine-year-old boy who had just completed his first trip from Montreal.

The lad, not at all impressed by the waterfront view of the metropolis, replied, "It looks like a forest of dead trees to me." His observation was most fitting, furthermore, for at the time the incident took place, in 1860, over 72 years ago, the countless sailing ship masts silhouetted against the sky resembled nothing more than a "forest of dead trees."

The boy, ADOLPHUS CASE, who retired after 50 years of continuous service with The Delaware and Hudson April 1, 1929, had secured his first employment as a driver on a canal boat operating between Montreal and New York. He had been born in Montreal May 2, 1851, the son of a ship carpenter. When ADOLPHUS was six years old, the family moved to Whitehall where boat building was then a thriving industry. The lad was therefore quite familiar with ships and water traffic by the time he was hired to drive a team of horses along the canal towpath.

During his first layover in New York he dared not leave the immediate vicinity of the pier at which the canal boat was being loaded for the return trip lest it depart without him, yet he did find time to talk with a sailor whose ship, a side-wheeler, was about to depart for Europe. Although ADOLPHUS had seen numerous steamers in the St. Lawrence River, on Lake Champlain, the Hudson River, and in New York harbor, he was thrilled at the daring idea of crossing the Atlantic with one's personal safety dependent partially or wholly on a steam engine.

When asked for a description of a transatlantic trip on a side-wheel steamer, the sailor said, "It acts much like any other boat in calm weather, but when the sea gets rough, and the waves look like moving mountains of water rolling at the ship from all directions, and maybe washing a boat, a man or two, or part of the cargo overboard, I don't like it very well. Why, the ship rolls so that first one paddle-wheel and then the other swings clear out of the water; at times I'm afraid she is going to tear herself apart." ADOLPHUS immediately scurried back to the safety of the canal boat, convinced in his mind that he would never trust his life to any craft ocean bound, and not daring to venture off the deck once the gas street lights had been lit at sundown.

Life on a canal boat was quite interesting, even though there was always more than enough work for the lad to do. The four horses needed to pull the boat through the canal, were kept in a stable on board, a bridge being provided to walk them on and off the craft when the two-horse teams were changed every six hours. Each driver was on duty six hours, then rested six, while passing through the canal, thus working twelve hours in every 24, for which he was paid, if ADOLPHUS' rate may be considered typical, 25 cents per day, plus board.

Leaving Montreal with a cargo of grain, ice, pulp wood, or lumber on board, the canal boat was towed by a steam tug down Lake Champlain; horsepower was used from Whitehall to Troy; then another tug was hired to pull the craft to New York, approximately two weeks being consumed by the one-way trip.

Twice during his twenty years on the canal MR. CASE'S boat made the trip from New York to Buffalo and back, via the Erie Canal, before returning to Montreal.

After his marriage to Paulina Aiken, of Whitehall, in 1881, he made only one more trip to New York; the following spring he was hired by Bridge and Building Department Foreman Combes of The Delaware and Hudson as a carpenter.

When he joined the bridge gang it was strengthening the wooden trestle across South Bay, just north of Whitehall, and during the succeeding 47 years MR. CASE assisted in the erection and repair of practically all the bridges, buildings, water tanks, and other structures on the Saratoga and Champlain Divisions.

Under Foreman Webster the gang completely relined the Whitehall tunnel, which is now being eliminated. MR. CASE helped build the ore crusher of the Chateaugay Ore and Iron Company at Lyon Mountain; he was a member of the gang which replaced the old wooden drawbridge between Green Island and Troy with an iron structure; and he helped install and replace the roundhouse turntables at various terminals between Schenectady and Rouses Point.

By 1917, at which time they were installing a new turntable at Rouses Point, MR. CASE had earned such a reputation as a cook that he was given that position permanently by Foreman John Brown. For years the bridge gang had boarded out wherever they happened to be stationed; the idea of having a boarding car was not introduced until about 25 years ago.

When MR. CASE took over the position of cook the bridge and building train consisted of three cars: One for small, frequently used tools; another for wood, coal, and heavy tools; and a third was divided into two sections, a sleeping compartment with eight beds, and a kitchen.

MR. CASE purchased and prepared the food for the entire gang; at the end of the month he divided the total cost by the number of servings to determine the cost per meal, then assessed each man accordingly. In later years MR. CASE had a division-wide reputation for the excellent quality of his food, particularly his doughnuts and pea soup. It is reliably reported that even the dining car chefs were frequently on hand with an empty dish when it was noised about that MR. CASE had a steaming kettle of soup in his kitchen.

MR. and Mrs. CASE, whose home is at 5 Third Avenue, Whitehall, have three children: Bernard, a grocer in Whitehall; Mrs. Irving Wilt, of Cleveland, Ohio; and Mrs. A. F. Lamphron, of Whitehall.

Pilgrimage Postponed

OWING to so few affirmative responses to the circular letter mailed to members of the 40-Year Group having been received, and also to the fact that the Veterans are to hold their annual outing at Oneonta September 10th, it has been decided by the Executive Committee that it would be inadvisable to hold the reunion and pilgrimage this year.

It is hoped, however, that conditions will be more favorable for the pilgrimage between June and September, 1933.

W. E. ANDERSON,
Chairman.

J. T. CONNORS,
Secretary.

New Prospects

A small son was asked by his mother, on his return trip from San Francisco, what he had done to entertain himself on such a long trip.

"Oh," answered the young hopeful, "I just told the jokes and riddles I knew to the passengers on the train."

"But you were on the train three long days and three nights," said she. "What did you do after you had told all your jokes and riddles, sweetheart?"

"You see, mother, new passengers got on at every station," he informed her.

Rickets: How to Prevent or Cure this Childhood Disease

IN recent years few diseases of childhood have attracted more attention than rickets. It is a nutritional disease which seems to bear a relationship to the adequate use by the body of lime and phosphorus. If these two elements are not present in the blood in the proper amount and proportion, deformities of the bones are produced such as knock-knees, bow-legs, enlarged joints, deformities of the spinal column, chest and pelvis, and enlarged head, and are associated with a prominent abdomen, flabby muscles, sweating of the head and delayed teething.

There seems to be little doubt that the development of rickets is intimately associated with climate. It occurs most often and in the severest degree in the temperate zone. Apparently it is more prevalent in cities, particularly in large industrial centers, than in the country.

Though rickets may begin earlier, it is rarely evident much before the third month of life, and is usually over by the eighteenth month. While it is true that children very seldom, if ever, die of rickets, this disease seems to render them more likely to take infectious diseases. This is particularly true of diseases of the air passages.

The same agents which will cure most cases of rickets will also prevent the disease if they are made available to the child before the condition develops. These agents are sunshine, ultra-violet light (artificial sunshine), cod-liver oil, viosterol, and irradiated foods.

About ten years ago it was demonstrated that sunshine has a definitely curative effect on rickets, and is now generally recognized as a most important factor both in the prevention and cure of this disease. However, it is only the short ultra-violet rays of the sunshine that has this property. These light rays are effective because they enable the body to use the calcium and phosphorus in the food in such a way as to bring about normal hardening of the bones. It must not be forgotten that these minerals must be present, since the best preventive of rickets in the world cannot make bone without bone ingredients. They must be supplied in the diet.

The effect of sunshine on rickets depends more upon its quality and intensity than upon the actual number of hours of sunshine available in any locality. Smoke, dust, and moisture tend to sieve out the ultra-violet rays of the sun. When passed through ordinary window glass, sunlight has no value either in the prevention or cure of rickets because the necessary rays cannot penetrate this substance. For the same reason ultra-violet rays cannot exert their healing effect through clothing.

Since we do not always have sunshine of the proper quality and intensity, we have learned to make use of artificial sunlight, in other words, the ultra-violet rays produced by special lamps. In this way we can secure irradiation whether the sun shines or not.

The second great natural preventive and curative agent in the rickets is cod-liver oil. Its effect seems to be due chiefly to its content of vitamin D, which brings about the proper combination of calcium and phosphorus necessary for the hardening of bone.

Vitamin D, however, can be produced by exposing a chemical known as ergosterol to ultra-violet radiation. This irradiated ergosterol is a very powerful agent in the prevention and cure of rickets. It is given to the child in very small doses. As overdosage causes disastrous results, it should be administered only on the advice of a competent physician.

Certain foods that ordinarily have no curative value in rickets can be activated by exposure to ultra-violet rays. These irradiated foods also may become useful adjuncts in the prevention and cure of the disease. Cod-liver oil contains both vitamins A and D, and some irradiated foods contain other vitamins besides D. No matter what curative substance is used, one should be careful to see that the diet is well balanced and contains adequate amounts of calcium and phosphorus.—*N. Y. State Health Dept. Bulletin.*

Arabian Proverbs

Do not say all you know for he who says all he knows often says more than he knows.
Do not spend all you have for he who spends all he has often spends more than he has.
Do not tell all you hear for he who tells all he hears often tells more than he hears.—*Staley Journal.*

TABLE OF DISTANCES
ON THE
DELAWARE & HUDSON CANAL,
SHOWING ITS
Divisions and Sections, Counties, Telegraph Calls, Numbers of Locks, &c., and the Location of Aqueducts, Feeders, Stop-Gates, Waste-Weirs, &c.

ARRANGED FOR THE INFORMATION OF THE TELEGRAPH DEPARTMENT, BY CHARLES PETERSEN, SUPERINTENDENT.

	NAMES OF PLACES	Telegraph Office Calls	Miles from Honesdale.	Miles from Eddyville.	No. of Locks.		County.	Remarks.
PENNSYLVANIA SECTION. LACKAWAXEN DIVISION.	***HONESDALE**	H		108	37	RR. Main Battery. Feeder.	Wayne.	
	LEONARDSVILLE		1	107	36			
	HOLBERT'S BASIN		2	106	35			
	BEARDSLEE'S BASIN		3	105		Aqueduct		
	BEACH FLAT		4	104	34			
	WHITE MILLS	CD	5	103	33	RR		
	BRINK'S DAM		6	102	32	Feeder		
	DANIELS'		7	101	31			
	NEWCASTLE		8	100				
	HAWLEY	HY	9	99	29 30	RR		
	TUMBLEDAM ROCK		10	98	27 28	Feeder		
	POOLPIT		11	97	25 26		Pike.	
	PUNCH CAMP		12	96	24			
	NARROWS		13	95	21 22 23	RR		
	SNYDER'S EDDY		14	94	19 20	Feeder		
	SHIMER'S EDDY		15	93	18			
	BLUE EDDY		16	92	17			
	MOUTH OF BLOOMING GROVE		17	91	16	RR,		
	BLOOMING GROVE ISLAND		18	90	15			
	GRISWOLD	GD	19	89	13 14			
	WESTFALL'S		20	88	11 12	RR. Aqueduct		
	ROWLANDS		21	87	10	RR		
	PORT HOWARD		21	87	9			
	LITTLE NARROWS		22	86	7 8			
	RIDGWAY		23	85	4 5 6			
	LACKAWAXEN	XN	24	84		RR. Aqueduct		
	DELAWARE AQUEDUCT		25	83	70 72	Delaware Feeder	Sullivan.	
NEW-YORK SECTION. SECOND DIVISION.	STOP LOCK		26	82		Four Mile Level		
	BEAVER BROOK		27	81				
	PANTHER BROOK		28	80		Aqueduct		
	BARRYVILLE	B	29	79	68 69	Stop Gate. Hanging Rock,		
	MITCHIC		30	78				
	HANDSOME EDDY		31	77	67	Waste Weir		
	BUTTERMILK FALLS		32	76				
	CRAIGSVILLE		33	75	65 66			
	VAN TUYLE S BASIN		34	74				
	VAN TUYLE'S BROOK		35	73	64			
	POND EDDY	RM	36	72	63			
	DECKER'S DOCK		37	71				
	FISH CABIN		38	70	62	Shad Fishing		
	VAN AUKEN'S BRIDGE		39	69	61			
	STAIRWAY BROOK		40	68	60			
	DICKERSON'S EDDY		41	67				
	MONCAUP	MP	42	66	58 59	Feeder. Aqueduct.	Orange.	
	BUTLER'S FALLS		43	65	57			
	BOLTON BASIN		44	64				
	HONESVILLE		45	63				
	SPARROWBUSH		46	62				
	WESTFALL'S BASIN		47	61		Stop Gate		
	***PORT JERVIS**	SB	48	60		Twelve Mile Level		
	BEN CUDDEBACK'S		49	59				
	PINE WOODS		50	58		Stop Gate		
	BIRD-NEST ROCK		51	57				
	HORNBECK'S CULVERT		52	56				
	HUGUENOT		53	55		Waste Weirs		
	VAN ETTEN'S BRIDGE		54	54				
	PORT CLINTON		55	53	55			
	NEVERSINK AQ.	Q	56	52	51 55	Neversink Feeder		
	CUDDEBACKVILLE		57	51		Stop Gate		
	VAN INWEGEN'S BASIN		58	50				
	STAUNTON'S BASIN		59	49		Stop Gate		
	WESTBROOKVILLE	WB	60	48		Aq't. Yankee P'd Feeder.	Sullivan.	
	TUNNEL HILL		61	47		Stop Gate		
	INDIAN SPRING		62	46				
	OAK BROOK		63	45		Aqueduct		
	BROWN HAVEN		64	44		Summit Level		
	MANERZA SMITH'S		65	43				
	GRAHAM'S DOCK		66	42		Stop Gate		
	SNEED'S BASIN		67	41				
	***WURTSBORO**	WS	68	40		Aqueduct. Stop Gate.		
	GUMAER'S BROOK		69	39		Waste Weir. Stop Gate.		
	SWAMP BRIDGE		70	38				
	LOG HOUSE		71	37				
	BEATYSBURG		72	36				
	DAVIS		73	35	49 50	Summit. Waste Weir		

New-York Section. First Division	SWAMP BRIDGE		70	38				
	LOG HOUSE		71	37				
	BEATYSBURG		72	36				
	DAVIS		73	35	49 50	Summit. Waste Weir		
	PHILLIPSPORT	SO	74	34	41 48	Topping's Res. Feeder		
	COUNTY LINE		75	33	38 40	Aqueduct. Change Bridge.		
	PENNY'S BASIN		76	32	36 37	Feeder	Ulster.	
	JARED RITCHIE'S		77	31	34 35			
	BRODHEAD'S BRICK-KILN		78	30	33			
	CUTLER'S BASIN		79	29	32			
	***ELLENVILLE**	RF	80	28	30 31	Mountain Brook Aqueduct.		
	TERWILLIGER'S		81	27	28 29	Feeder		
	DECKER'S		82	26	27			
	NAPANOCH		83	25		Enderly's Basin		
	PORT BENJAMIN		84	24	26	Aqueduct		
	PORT HYXSON		85	23	25	Rondout Creek Feeder		
	BRUYAN'S BASIN		86	22		Two Mile Level		
	MIDDLEP'T, (Kerhonkson,)	MI	87	21	24	Dumond's Aq. Stony Kill.		
	MOUNTAIN BROOK		88	20		Mountain Brook Aq.		
	C. P. HORNBECK'S		89	19				
	DAVID VERNOOY'S		90	18		Four Mile Level		
	PORT JACKSON		91	17				
	STONY KILL		92	16	23	Aqueduct		
	FREELAND'S		93	15				
	JOHN S. DEPUY'S		94	14	22	Basin		
	ALLIGERVILLE	VI	95	13	21	Peterskill Feeder & Aq't.		
	SNYDERVILLE		96	12				
	CLOVE CHURCH		97	11		Four Mile Level		
	HASBROUCK'S		98	10				
	HIGH FALLS	HF	99	9	12 20	† Main Battery. Feeder.		
	COLE'S BASIN		100	8	10 11			
	LAWRENCEVILLE		101	7	8 9			
	ROSENDALE	RA	102	6	7			
	LE FEVER'S FALLS		103	5	6	Basin		
	HARDENBURG'S		104	4	5	‡ Basin		
	CREEK LOCKS	CK	105	3	2 4	§		
	HORNBECK'S BRIDGE		106	2				
	GREENKILL		107	1				
	***EDDYVILLE**	DE	108		1	Guard & Weigh Lock		
	RONDOUT, D. & H. C. Co.	RN						
	RONDOUT, Private Office	RD						

* Collector's Office. † Suspension Aqueduct. Double Tow-path from Lock 12 to Lock 20. ‡ Junction of Wallkill and Rondout Creeks. § Boats pass three miles through Rondout Creek.

Herald Job Printing Establishment, Honesdale, Pa.

On the Old Canal

THE above table of distances on the Delaware and Hudson Canal, taken from a collection of historic papers in the possession of MR. W. E. ANDERSON of the Engineering Department, is worthy of careful scrutiny. Certainly few of us are aware of the existence of a telegraph department in connection with the operation of canal boats. The notation "Double tow-path from Lock 12 to Lock 20" indicates that this portion of the route must have been "double-tracked" in this region of heavy traffic. And what pictures your imagination conjures up as you read down the list and mentally ride a boat through sunlight and shadow along the winding route of the old anthracite carriers!

Let Us Have Faith

AMERICA has beaten nineteen major depressions, an economist points out. In 1893 stark ruin stalked through the land. One hundred and sixty-seven banks failed in a few months. Mills, furnaces and factories shut down everywhere. Bankruptcy was on every hand. America had twice as many unemployed per thousand population as she has today. But she put them all back to work.

In 1907 panic broke loose. The production of pig iron dropped 50 per cent in less than a year. All but the strongest men lost heart—"We are ruined," they declared, "recovery cannot come in our time." Yet in two years prosperity had returned.

In 1921, when many honest and thoughtful people were predicting worse conditions, the country was already beginning to climb to the greatest era of prosperity it had ever experienced.

History tells how America has fought and beaten 19 major depressions. Good times always follow hard times, as surely as day follows night. Prosperity always comes back. It is coming back this time, too.

Above all things, let us have faith.—*Adapted.*

Circumstantial Evidence

Alkali Ike: "What's happened to the tenderfoot stranger wot was here last week?"

Texas Pete: "Poor feller. The second mornin' he was here he was brushin' his teeth with some of that foamy tooth paste and one of the boys thought he had hydrophoby an' shot him."

Soho, An Early Experiment in Industrial Organization

PART I — BOULTON AND WATT, Partners

NEITHER Henry Ford, Taylor, nor other modern experts or organizers have devised anything in the way of factory practice that was not known at Soho, the manufacturing establishment of Boulton and Watt, before 1805; and the Soho system of cost accounting is superior to that employed in very many successful concerns today. This earliest factory, therefore, possessed an organization on the management side which was not excelled even by the technical skill of the craftsmen it produced. Before further describing Soho we must turn for a moment to the latter part of the 18th century, about 1775.

James Watt is considered by many to be the inventor of the steam engine. What Watt actually did was to perfect the apparatus as originally built by Newcomen so that it became commercially practicable. During the first half of the 18th century the Newcomen engine had performed valuable service in pumping water from coal mines. This engine operated by means of the vacuum caused by turning cold water onto the steam-filled cylinder for each stroke of the piston. High fuel consumption, its principal defect, limited the use of the apparatus to the coal mines, although the copper mines of Cornwall offered an excellent market for some more efficient device, coal being scarce and expensive there.

In his history of the firm of Boulton and Watt entitled *An Early Experiment in Industrial Organization,* Dr. Erich Roll speaks of Watt as "one of the few benefactors of mankind whose fame was established during his lifetime, and the value of whose work has usually been over- rather than under-estimated. Indeed, on account of the great importance of Watt's technical inventions the name of Boulton, the partner who was associated with him in his life work, has often been overlooked."

First Scientific Management

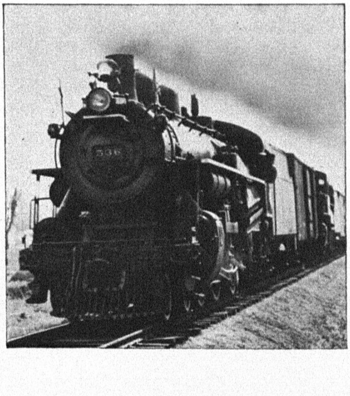
The story of the struggle of the partners, beginning June 1, 1775 and culminating in the ultimate success of the enterprise, and the passing of the business to the sons of the two founders, is also the tale of what is probably the first successful attempt at what we now term scientific management. It is of further interest that the powerful and more reliable engine produced in this factory was of greater importance in general industrial development than is commonly recognized.

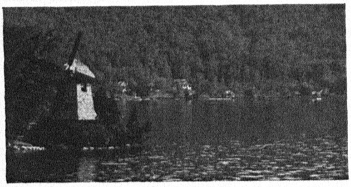
At the formation of the partnership Matthew Boulton was 47 years old, and one of the most successful business men of the Birmingham district. He had inherited a silver stamping business from his father, married an heiress, and being naturally talented as a business man, made an excellent backer for the inventor, Watt.

Power is the all-important factor in most manufacturing plants. Being in a position to produce engines of whatever size was required for their purpose, it followed rather naturally that Boulton should eventually lay out a well organized business, sub-divided into departments located in different shops and providing employment for from six to eight hundred workers.

Training Craftsmen

"The second factor in the great success of Boulton's business," says Dr. Roll, "was the fact that Boulton, together with the establishment of a factory, has trained a body of highly skilled craftsmen who were superior in the exactitude of their work to the usual type of workmen engaged in these trades. This was brought about partly by Boulton's own desire for highly artistic workmanship and partly through the nature of his products, which were largely ornamental wares............"





He was continually introducing new manufactures into his works and into the district, for example, silver-plated articles and clocks. Boulton was the first in Birmingham to offer complete services of plate and other large articles of silver.

The characters of the two partners seem diametrically opposite. Watt, the inventive genius, was quick-tempered, not jovial in disposition, and generally unsuited for business. Boulton, on the other hand was not only an ingenius mechanic, but possessed the ability to promote the manufacture and sale of any new invention. Had he not taken up the idea of Watt's engine at a critical juncture some other would probably be credited today with its invention. At any rate "it was the accidental but very happy combination of a great many factors that led to the establishment of the firm of Boulton & Watt."

Consulting Engineers

As originally operated the firm corresponded to our present day consulting engineers. They designed pumping engines and licensed the purchasers of their designs to construct and erect the machinery under the supervision of a competent engineer furnished by the company. One of these, William Murdoch, later rose to a position of great importance in the organization.

The first engine ordered, in June 1775, was 24 feet high with a 50-inch cylinder and a 52-inch pump. The various parts cost nearly $10,000. Watt estimated the life of the engine at from 40 to 50 years and a year's guarantee as to all repairs was included in the contract. March, 1776 saw the engine working and subsequent fuel consumption was estimated to be but one-fourth that of the "common" engine.

At first there existed no good standard by which to determine the charges for engines erected in the various mines. Watt suggested charging one-half the fuel saved during a ten-year period. Eventually savings were computed on the basis of a minimum price of coal of $1.25 per ton.

Eighteenth Century Advertising

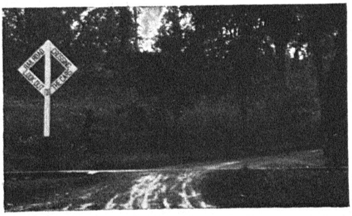
"Nor were they unaware of the great value of advertising a successful new engine extensively. Boulton, of course, had employed all existing media of advertising before in his old business. Open access to the factory at Soho was extended to all visitors. In addition, printed illustrated circulars were used extensively both at home and (in French and German) abroad, while newspaper announcements were also employed. All these channels were now available to the new branch, the engine business. It is interesting to note that Watt, who is habitually represented as a very bad business man and who actually did not take much interest in the commercial side seems to have learnt at least the value of advertisement from Boulton; for we find him giving the following suggestions for an announcement in the newspaper to one of his customers:

> 'We hear from Lawton Saltworks that Mr. S. has now completed his new works on the banks of the Staffordshire Canal, which are esteemed to be the most complete in their way of any in the country; the reservoir of brine is situated 100 yards above the brine in the pit and higher than the canal. It is filled with brine by a small Fire Engine constructed by Boulton & Watt of Birmingham, which does its business with great ease and a very small consumption of fuel.' "

What is described as "the only sanguine letter of Watt" was written to Boulton relative to the settlement of their claim against the Hawkesbury Colliery for the fourth engine built by the firm. The arbiter awarded them an annual payment of about $1000, although they had originally considered $150 a just premium. Enough to make anyone sanguine!

Due to patent restrictions on the general use of the crank and connecting rod the impossibility of

(Continued on page 252)



The

Delaware and Hudson Railroad
CORPORATION
BULLETIN

Office of Publication:
DELAWARE AND HUDSON BUILDING,
ALBANY, N. Y.

PUBLISHED MONTHLY by The Delaware and Hudson Railroad Corporation, for the information of the men who operate the railroad, in the belief that mutual understanding of the problems we all have to meet will help us to solve them for our mutual welfare.

All communications should be addressed to the Supervisor of Publications, Delaware and Hudson Building, Albany, N. Y.

Vol. 12 September 1, 1932 No. 16

"The 5.15"

EVERY time the South Dakota Railroad Commission, or any other similar body in another state, grants a license for a bus or truck line paralleling existing lines of railroad, a step has been taken to silence forever the whistle of the 5:15," says the editor of the *Hot Springs (S. D.) Star*.

"And do people realize what it means to put the railroads out of business?

"There are counties in South Dakota where railroads pay all the way from 15 to as high as 55 per cent of the taxes.

"In some of the western counties of South Dakota, county and school governments could not function without the aid of railway taxes.

"Yet year after year bus lines and great freight truck carriers eat into the business of the railroads.

"All over America the 5:15's are going.

"They are gradually being licked, but some day we will wake up to the results of our folly.

"The day is not far off when many branch lines over the country will be abandoned.

"Then how the counties will jump and how the office holders and taxpayers will yell.

"Communities begin to appreciate the railroads when they are taken from them.

"The Milwaukee Railroad cut out of service a short line the other day.

"It ran to a little country seat in Wisconsin.

"Then some politicians realized that the little branch road was the largest source of school taxes.

"While it operated the local politicians had done their best to put it out of business in favor of the bus lines and freight trucks owned by their own friends.

"The county seat is now shrieking for help.

"The train has made its last trip.

"The 5:15 has whistled for the last time.

"The county seat is left to the glories and the vagaries of the beautiful new highway which the people built for their bus and truck lines..........

"This editorial points out what is going to happen to our county and school funds when the whistles of the locomotives are stilled.

"Where will we be when the 5:15 runs no more down the lines of shimmering steel?"

Uncertainty and Chaos

WIDESPREAD demoralization of markets and prices is partly the result of unregulated and uncontrolled motor truck marketing in the opinion of competent transportation authorities.

In striking contrast to the stability of rates and the orderly distribution which results from systematic carlot shipments by railroad, is the uncertainty of rates and the disorderly distribution resulting from motor truck marketing.

An Atlanta produce merchant writes that "Atlanta is now (in May, 1932) experiencing one of the worst gluts in its history." He says, "if the final consumer price were all profit, the grower would starve. These conditions are brought about because Georgia is the dumping ground for truck peddlers from everywhere in the country. These trucks compete with the grower, free of license of any kind."

Testifying before the New Jersey legislature, the vice-president of a cement company said: "In the course of five years the transportation of the cement business has gone from certainty to chaos. Uncertainty breeds suspicion and distrust. Open competition is suppressed, and orderly marketing gives way to demoralization."

Other industries have had a like experience. Coal trucked from mines to household consumers has put many established retail dealers out of business, but without substituting in their stead a regular and dependable source of supply.

* * *

Intelligence, fairness and our own selfish interests demand the formulation of a regulatory policy that will apply equitably to all forms of transportation.
—*The Whitehall Times.*

"The Papers Say"

The *New York Gazette*, Sept., 1775, says:

"The women of the country, ever good on such occasions, are knitting several large bags of stockings and mittens to be sent to the poorer soldiers in garrison at Fort William Henry and Fort Edward."

And from the *New York Evening* Post of July 8, 1832:

"Saratoga & Schenectady Rail Road. Carriages for the transportation of passengers will commence running on this road on Thursday the 12th inst. Each day, until further notice, they will leave Schenectady for Saratoga Springs at half past 8 a. m. at half past 11 a. m. and at half past 5 p. m. By this arrangement, passengers, leaving Albany on the Mohawk and Hudson road in the first train, will breakfast at Schenectady and reach Saratoga at about half past 10 a. m. The Mohawk and Hudson and the Saratoga and Schenectady Rail Roads are separated only by the Western Canal, over which a convenient bridge has been erected for the accommodation of passengers."

With Interest!

IN 1819 a depositor put $10 in the Bank for Savings, New York City. In 1820 he added $5 more. Since that time there has never been another deposit or a withdrawal, though the heirs have kept the account alive. It now amounts, with interest, to $3,100.

Setting Her Right

Nature lover (gazing at tree): "O wonderful, mammoth oak, if you could speak, what would you tell me?"

Gardener (nearby): "S'cuse me, mum, but 'e would probably say, 'If you please mum, I'm not an oak. I'm a spruce."

Group Life Insurance Payments, June and July

FOURTEEN Delaware and Hudson men whose Group Life Insurance claims were paid during June and July provided protection of $22,800 for the beneficiaries of their policies. Of this amount $15,000 was paid on a total of ten cases settled in June, while the balance, $7,800, represents three claims paid in July.

One policy provided for payment of $5,800 under the Conductor's Special Life Insurance arrangement while two others represented the $500 Free Insurance provided by the company for all employees with over two years' service.

Individual payments were made as follows:

NAME	OCCUPATION	LOCATION	DATE DIED	CLAIM
Barker, Charles F. (P)	Conductor	Colonie	6-5-32	$1000.00
Blanchard, Alfred	Section Foreman	Willsboro	6-4-32	1800.00
Boyle, Patrick H.	Agent	Dannemora	5-29-32	1400.00
Churchill, Fred J.	Crossing Watchman	Fort Edward	6-10-32	1000.00
Harrison, Albert T.	Crossing Watchman	Whitehall	6-24-32	1000.00
Kelley, David H. (P)	Fuel Inspector	Albany	6-3-32	3000.00
Lynady, Timothy W.	Trainman	Carbondale	5-23-32	2200.00
Natale, Anthony	Crossing Watchman	Saratoga	6-29-32	1000.00
O'Neill, William	Crossing Watchman	Glens Falls	5-25-32	1000.00
Piglitti, John	Car Repairer	Oneonta	1-20-32	1600.00
Pulver, William B. (P)	Crossing Watchman	Waterford	1-22-32	500.00
Reed, Daniel	Track Walker	Glens Falls	7-12-32	1000.00
Robbins, Sigel R.	Conductor	Carbondale	6-25-32	*5800.00
Whalen, James (P)	Crossing Watchman	Whitehall	6-2-32	500.00

(P) Pensioned employee.

* Includes payment under Conductor's Special Life Insurance.

Soho

(Continued from page 249)

adopting Watt's engine to produce rotary motion prevented its extensive use until 1782. A "steam wheel" was designed but there is no evidence of any commercial production of it.

Workmen and Materials

Mention is made of the firm's trouble with spies (English and foreigners, but mostly the latter), from whom they did not however suffer greatly, despite Watt's strong and frequent complaints, often in hysterical language. The reason is not far to seek. Even if the principle of the engine had become known to a stranger, he would have found it impossible to construct an engine without the combination of advantages possessed by Boulton & Watt, namely, superior technical knowledge, superior workmen, and above all superior suppliers of the main component parts.

These last include one Wilkinson whose foundry and machine shop was the only one in the country capable of furnishing cylinders machined to the required degree of accuracy. Likewise, they obtained their pig iron from Isaac Spooner of Birmingham or from Wright & Jesson. They used only the best tough scrap iron or the best gun barrel iron. Their screws were made with solid heads, far stronger than common.

Cornish Markets

"Sales Manager" Boulton saw the possibilities of extending the engine market to the Cornish tin and copper mines. He secured a list of all engines then in operation in that country, "exactly forty, but there are only eighteen of 'em in work on account of ye high price of coals." To promote sales in Cornwall the partners departed from their former policy and offered to erect an engine at their own expense in order to obtain a foothold. This machine was put in operation in 1778, nearly two years after receipt of the order, delays being due largely to the small size of the hatchways on the ships available for transporting the engine which had a 52-inch cylinder. This apparatus caused a great deal of trouble and the mine owners ordered its removal but later were persuaded to keep it.

Two years later a 58-inch engine was put up at the "Ale and Cakes" mine. This proved a great success, a fact which shows the higher degree of skill that had been acquired by the engineers and workmen in that short period.

"At the end of 1783 twenty-one engines had been erected in Cornwall by the firm; and Watt was able to write that in the whole country only one Newcomen engine remained. It is really at this stage that the importance of Cornwall for Boulton & Watt engines declines; for this year sees the introduction of the rotary movement which removed the old limitations of the market. During the following thirteen years, twenty-two engines were erected in Cornwall, and the number erected after that, until the connection of Boulton & Watt with Cornwall ceased entirely, is put at eleven. The total number, therefore, is fifty-five, and it is a significant fact that twenty-one of these were erected during the first six years."

"Adventurers" Assembled

In order to improve Cornish mining conditions Boulton sought, in 1785, to introduce more efficient methods of internal management. Assembling a group of "Adventurers," as the mine-owners were then called, he gained their assent to the establishment of The Cornish Metal Company, a combination of copper producers and smelters designed to regulate the industry.

During the next few years high prices stimulated the mining of copper until suddenly difficulty was experienced in disposing of stocks on hand. Boulton's suggestion that some of the least efficient mines be shut down, thus reducing the total production, met with a storm of protest. Eventually the Cornish Metal Company passed out of existence and the Cornish mines became of diminishing importance.

Rotative Engines

The second phase of the business commences with the production of rotative engines replacing that of the pumping type.

The serious lack of capital now hampered the growth of the business and more than once threatened ruin for the partners. Boulton seems to have had a major part in financing the company's activities while Watt took a most ungenerous attitude where any risk of his personal fortune was involved.

"The idea of attaching some mechanism to the steam engine for the purpose of producing a circular motion had been in the minds of both Boulton and Watt for some time, but the first practical contrivance of this kind—the Steam Wheel or 'rotary engine,' which has already been mentioned, was never put on the market. The same idea formed at the time the general preoccupation of engineers and a great number of inventions were tried. It was to an engine of the old Newcomen type that a mechanism for rotative motion was first applied. This was done by Matthew Wasborough, a clockmaker of Bristol, who had on several occasions made nozzles for the Soho firm. He patented his invention in 1779, and in that year set up an engine at his works in Bristol with the new mechanism; but he had to work on an engine of the old type, since Boulton & Watt would not allow him a license for their engine with the application of his new invention. In the same year he erected another engine with the new mechanism at the metal grinding mill belonging to James Pickard of Snow Hill, Birmingham.

Crank and Connecting Rod

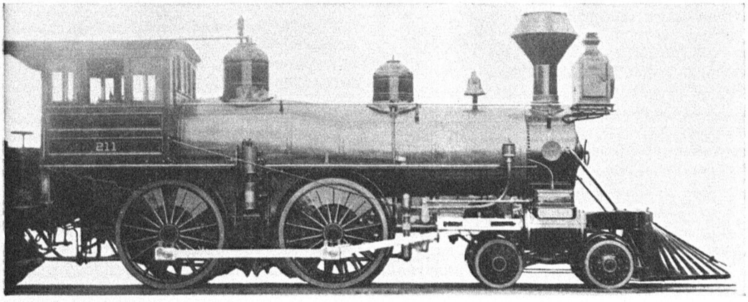
"The next step in the development of the rotative motion was the introduction of the crank, and in this connection the tradition maintains that the invention, or rather the application of the crank to the steam engine, was stolen from Watt by James Pickard who succeeded in having it patented first. It is, however, clear from the chronology of the events as revealed by the correspondence that this was not so. Wasborough replaced his own invention which did not turn out successfully, by the single crank; and it seems that Watt did not object to that, for he did not consider it a patentable improvement as it was 'like taking a knife to cut cheese which had been made to cut bread.' In 1780, however, Pickard had obtained another patent, for the exploitation of which he had entered into partnership with Wasborough. It was to the granting of this patent, which combined the crank with an arrangement of counter-weights, that Watt strongly objected; and he maintained that it was this combination which had been stolen from him. From a statement drawn up by Dick Cartwright, one of the Soho workmen, it appears that Watt had been experimenting with this contrivance for some time and had actually constructed a working model at Soho. Cartwright, talking with fellow-workmen about engines at an ale-house, was guilty of an indiscretion, and in this way Pickard was alleged to have obtained knowledge of Watt's new invention.

"On October 25, 1781, Watt was granted a patent, the specification of which was signed on February 23, 1782, comprising five different mechanisms for producing a circular motion, but of these only one, the 'Sun and Planet' gear method, was adopted in practice. It seems that William Murdock had some share in the invention, and he was considered as having been its original contriver. The patent, however, was taken out in Watt's own name; and there is no evidence that Murdock got any remuneration for whatever his share in the invention may have been.

New Uses For Steam

"Watt's mind was also occupied with other projects, and on July 4 of the same year, he took out an additional patent, which, among other improvements, contained the principle of the double-acting engine. The first Sun and Planet gear was applied at the end of 1782 to an engine erected at Soho the previous year to work a forge hammer;

"Big Power" in 1880



but the first engine on the new rotative principle supplied to a customer was for Wilkinson's forge hammer at Bradley, which was set to work in March, 1783. Soon the new double-acting principle was combined with the rotative motion, and the first engine of this construction was put up at Soho at the end of 1783. The number of iron mills, however, to which the new engine could be sold was small, and Boulton thought that business would increase only if the engine could be introduced as a motive power in corn and flour mills. A corn mill was therefore set up at Soho to demonstrate this application. Boulton also hoped that a considerable market could be found for the new engine for the purpose of winding coals or ores. As a matter of fact one of them was set up in Cornwall in 1784."

Albion Steam Flour Mill

One of the main reasons for the popularity of the new engine was the performance of the Albion Steam Flour Mill. "For the erection of the engine and mill work, Boulton & Watt secured the services of John Rennie, the famous engineer and builder of Waterloo Bridge. The building was in charge of Sam Wyatt, the architect, and, although it was originally proposed to set up three engines, only two were actually erected. The first engine started work on February 15, 1786, and the second engine three years later in 1789; but, although the engines had proved a technical success, the partners were dissatisfied. The cost of the erection was in excess of the estimate, and Watt in particular was worried about the prosperity of the concern. His anxieties were mainly about the commercial aspect of the undertaking, and he was afraid that the business would fail to make a profit unless capable management was forthcoming. He also found fault, and not unjustly, with the practice of making the mill a show place, and considered that the best advertisement would be to be 'content with doing.' "

Five years later, March 2, 1791 the mill was destroyed by fire just as its operation was beginning to show a profit. Although the loss of the mill cost the partners about $45,000, its advertising value had been tremendous due to the high standard of performance of the engines.

The ensuing rush of orders necessitated consideration of some way of standardizing. "Boulton was apparently the first to realize the possibilities in this situation, and in a letter to Watt in 1782, he suggests that the difficuly of building engines could be overcome by making a pattern card of them, and he thought that they should confine themselves to the standard sorts and sizes. Four years later we find Watt expressing a similar idea. They would be obliged he thought to

> 'methodize the rotative engines so as to get on with them at a great pace. Indeed that is already in some degree the case. But we must have more men, and these we can only have by the slow process of breeding them.' "

The new product was sold on a horsepower basis, this unit being determined by the load raised over a pulley by a mill-horse going at a certain pace. Thus determined, the "horse-power" unit as a measurement of the rate of doing work has survived until the present time, when the kilo-watt and its alternating-current cousin, the kilo-volt-ampere threaten to displace Watt's "home-made" unit wherever electricity displaces steam.

(To be continued)

Obeying Orders

THE president of a great corporation recently said that he had a rule which he recommended to anyone who wanted to know how to get ahead in business. The rule is: *Do what you are told!*

Many superficially clever people wonder why they do not make more progress. These people have ideas and personality. They make excellent models for photographic illustrations of executives at work, but they are no good for real work. Their weakness is that they have never learned to take and execute orders.

That an executive may function he must have dependable assistants. Nothing else brings so much peace of mind to an executive as the knowledge that the job he told Jones to do yesterday will be done by Jones. No follow-up is necessary because Jones is dependable.

Such men are as indispensable as anyone can be. They are the bone and muscle of the organization.

They are the stuff of which presidents eventually are made. Because, until a man has learned how to follow orders, he does not know how to give them.—*Through the Meshes.*

Called His Bluff

Candidate (making campaign speech): "I am a practical farmer and in sympathy with farmers. I can plow, reap, milk cows, shoe a horse,—in fact, I doubt whether any of my hearers can name one thing about a farm I can not do."

Voice (from back of hall): "Can you lay an egg?"

Clicks from the Rails

Crossing Problem Solved

Railroad grade crossings in Ireland do not present the hazard they do in America. During daylight hours each crossing is guarded by a watchman; after dark a large iron gate is swung across the highway on each side of the tracks and padlocked. Pedestrians can get through without trouble, but motorists must go to the watchman's house nearby and have him unlock the gate before they can cross the tracks. Commenting on this system, *The Wall Street Journal* suggests that it might solve two problems in this country: it would reduce grade crossing accidents and, if the crossing watchman were of the right type (one who never stays home at night) it ought to tie up highway competition pretty effectively.

◆

Smallest Railroad

The smallest railroad in the United States, seven blocks long, has gone out of business. This line was built through the streets of Lincoln, Neb., ten years ago to handle materials used in the construction of the state's new $12,000,000 Capitol building. Now that that structure has been completed the baby railroad will be abandoned.

◆

Pontoon Bridges

There are only three pontoon railroad bridges in the United States, according to *Railway Age*, all of which are owned by the Chicago, Milwaukee, St. Paul and Pacific. One of these bridges with two floating spans was built across the Mississippi between Marquette and Prairie due Chien, Wis., in 1874, to replace the car ferries which formerly carried trains across the river. James Doyle, who was appointed pontoon bridge tender in that year is still on the job, opening a passage for river vessels and adjusting the bridge's level to the rise and fall of the river.

Traveling Bird's Nest

A mother sparrow who built her nest on an Illinois Central passenger coach at Starkville, Miss., has had a difficult time since she selected this traveling site for a home. Despite the fact that the coach makes two 44-mile round trips daily, the bird laid her eggs and hatched and reared three young sparrows. While her young were making their daily excursions the mother patiently "stood by" near the Starkville station.

◆

Germany's Fast Trains

Germany recently made her bid for honors in the field of fast train operation with the publication of data concerning the running time of her Berlin-Hamburg express which covers that 178.2-mile stretch at an average speed of 59.7 miles per hour, and attains a maximum of 70 miles per hour en route. The lowest average speed of twelve other trains on runs in excess of 25 miles is 54.86 miles an hour. The two fastest trains on the continent outside of Germany are said to be the Paris-Bordeaux and the Paris-Strassburg expresses, each with an average speed of 52.25 miles per hour.

◆

The "Eclipse Special"

The "annual train" of the Stratford-on-Avon & Midland Junction Railway in England ceased to be the most infrequently scheduled train with the announcement by the Boston & Maine of the "Eclipse Special" which, on August 31, conveyed passengers from Boston and vicinity to "ringside seats" from which to view, for 98 seconds, the eclipse of the sun. As the next "Eclipse Special" is not due to leave until the year 2017 this 85 year interval sets a new record.

Ambitious Rail Names

Several American railroads do not reach all the places their names imply: The Chicago, Rock Island & Pacific does not reach the Pacific Coast, nor does the St. Louis-San Francisco have a terminal at the Golden Gate; The European & North American, part of the Maine Central, stretches no nearer Europe than the state of Maine; and The Duluth, South Shore & Atlantic gets no closer to the Atlantic Ocean than the eastern extremity of upper Michigan. Then there is the Detroit & Mackinac, which does not enter Detroit and which has its northern extremity at Sheboygan, Mich.; and also the Scioto Valley and New England, a part of the Norfolk & Western, which stops a good many hundred miles short of the terminus implied in the latter half of its name.

◆

Saves Burning Truck

G. C. Buell, chief clerk in the Illinois Central office at Vicksburg, Miss., figuratively heaped coals of fire on the head of one of his system's competitors when he saw a truck, loaded with coal, on fire. He rushed out with a fire extinguisher and put out the flames before the arrival of the city firemen, thus saving the truck and its contents.

◆

Extinguish Bridge Fire

While driving along the highway, accompanied by his daughter and her girl friend, R. H. Honea, Louisville and Nashville switchman, noticed that the railroad bridge at Wyvern was on fire. Mr. Honea immediately telephoned the dispatcher's office at Knoxville; meanwhile, the girls had borrowed buckets at a nearby house and had the fire nearly under control when a section gang, hastily summoned by the dispatcher, arrived to finish extinguishing the blaze.

Life

WE enter a strange labyrinth,
We find both joy and tears;
We strive to change the whole world's trend
In our allotted years!
We hurry here, we hurry there,
From discontent ne'er free;
And then—one day the sun comes up
And we're not there to see!

—CLIPPED.